

CLAIMS

1. A latch comprising:

a latch module including at least a portion of a latching mechanism; and
an actuator module,

5 wherein said latch module can be secured to said actuator module in any one of a
plurality of angular orientations relative to said actuator module, such that a user can secure said
latch module to said actuator module with said latch module being in a user selected one of said
plurality of angular orientations relative to said actuator module,

 wherein the latch can be operated to assume a latched configuration and an unlatched
10 configuration, and

 wherein during operation of the latch between said latched configuration and said
unlatched configuration said latch module at least in part remains in said user selected one of
said plurality of angular orientations relative to said actuator module.

15 2. The latch according to claim 1, wherein said plurality of angular orientations include at
least three angular orientations.

 3. The latch according to claim 1, wherein said actuator module has a first plurality of
holes and said latch module has a second plurality of holes, said second plurality of holes
20 registering with said first plurality of holes with said latch module being in any one of said
plurality of angular orientations relative to said actuator module, said plurality of angular
orientations being determined by reference to rotation about an imaginary axis passing through
said actuator module,

whereby said latch module can be secured to said actuator module in any one of said plurality of angular orientations by using appropriate fasteners cooperating with said first plurality of holes and said second plurality of holes.

5 4. The latch according to claim 1, wherein said latch module has at least one hole and said actuator module has a plurality of holes, said at least one hole of said latch module being capable of registering with any one of said plurality of holes of said actuator module to thereby allow a user to secure said latch module to said actuator module in said user selected one of said plurality of angular orientations by the user placing said at least one hole of said latch module in
10 registry with a user selected one of said plurality of holes of said actuator module and then using at least one appropriate fastener cooperating with said at least one hole of said latch module and said user selected one of said plurality of holes of said actuator module to secure said latch module to said actuator module, said plurality of angular orientations being determined by reference to rotation about an imaginary axis passing through said actuator module.

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5. The latch according to claim 1, wherein said latch module has a plurality of holes and said actuator module has at least one hole, said at least one hole of said actuator module being capable of registering with any one of said plurality of holes of said latch module to thereby allow a user to secure said latch module to said actuator module in said user selected one of said
20 plurality of angular orientations by the user placing said at least one hole of said actuator module in registry with a user selected one of said plurality of holes of said latch module and then using at least one appropriate fastener cooperating with said at least one hole of said actuator module and said user selected one of said plurality of holes of said latch module to secure said latch

module to said actuator module, said plurality of angular orientations being determined by reference to rotation about an imaginary axis passing through said actuator module.

6. The latch according to claim 1, wherein said actuator module comprises an actuating member having a longitudinal axis and said actuating member remains in a position to engage said latch module such that the latch remains operable with said latch module secured to said actuator module in any one of said plurality of angular orientations, said plurality of angular orientations being determined by reference to rotation about an imaginary axis passing through said actuator module.

7. The latch according to claim 6, wherein said actuator module further comprises a first housing supporting said actuating member, wherein said latch module comprises a second housing supporting a pawl, wherein the latch remains operable with said second housing secured to said first housing in any one of a plurality of angular orientations relative to said first housing about said imaginary axis, wherein said imaginary axis is coincident with said longitudinal axis of said actuating member, and wherein said plurality of angular orientations of said second housing relative to said first housing define said plurality of angular orientations of said latch module relative to said actuator module.

8. The latch according to claim 7, wherein said pawl is supported by said second housing for rotary movement between latched and unlatched positions relative to said second housing.

9. The latch according to claim 8, wherein said pawl is spring biased toward said unlatched position, wherein said latch module further comprises a catch member movable between engaged and disengaged positions and biased toward said engaged position, wherein said catch member maintains said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position, and wherein said pawl is released for movement to said unlatched position under spring bias when said catch member is moved to said disengaged position.

10. The latch according to claim 9, wherein said actuating member is adapted to selectively engage said catch member to thereby move said catch member to said disengaged position.

11. The latch according to claim 10, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

12. The latch according to claim 11, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

13. The latch according to claim 12, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that

defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

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14. The latch according to claim 13, wherein said catch member has an inclined surface and said post member of said actuating member engages said inclined surface to move said catch member from said engaged position to said disengaged position as said actuating member is moved linearly from said retracted position to said extended position when said latch module is
10 secured to said actuating module in said user selected one of said plurality of angular orientations of said latch module relative to said actuator module.

15. The latch according to claim 14, wherein said pawl has a catch surface that is engaged by said catch member to retain said pawl in said latched position when said pawl is in said
15 latched position and said catch member is in said engaged position.

16. The latch according to claim 15, wherein said pawl moves rotationally between said latched position and said unlatched position about an axis of rotation, wherein said pawl has a pawl slot having an open end, wherein said second housing has a crook portion that overhangs
20 said axis of rotation such that said crook portion obstructs said open end of said pawl slot when said pawl is in said latched position, and wherein said open end of said pawl slot is positioned for unobstructed access from at least one direction by a keeper rod when said pawl is in said unlatched position.

17. The latch according to claim 16, wherein the latch is adapted for attachment to a first member and the keeper rod is attached to a second member and the latch secures the first member in a closed position relative to the second member when the latch is attached to the first member and the keeper rod passes through said pawl slot with said pawl in a latched position, wherein the first member has an opening adapted for mounting of the latch to the first member, wherein said first housing has a first flange that is too large to pass through said opening, wherein said second housing has a second flange that is too large to pass through said opening, and wherein a portion of the first member adjacent the opening is captured between said first flange and said second flange when the latch is attached to the first member with said second housing secured to said first housing.

18. The latch according to claim 17, wherein said pawl has a cam surface defining one side of said open end of said pawl slot, and wherein said cam surface at said open end of said pawl slot is impacted by the keeper rod to thereby initiate rotation of said pawl from said unlatched position toward said latched position and further engagement of the keeper rod with said pawl slot causes further rotation of said pawl toward said latched position as the first member is moved to the closed position relative to the second member, such that movement of said pawl to said latched position is accomplished by moving the first member to the closed position relative to the second member.

19. The latch according to claim 7, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

20. The latch according to claim 19, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said
5 imaginary axis in response to said handle moving between said raised position and said folded-down position.

21. The latch according to claim 20, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that
10 defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

22. The latch according to claim 7, wherein said second housing has at least one hole and said first housing has a plurality of holes, said at least one hole of said second housing registering with a user selected one of said plurality of holes of said first housing to thereby allow said
15 second housing to be secured to said first housing in said user selected one of said plurality of angular orientations by using at least one appropriate fastener cooperating with said at least one
20 hole of said second housing and said user selected one of said plurality of holes of said first housing.

23. The latch according to claim 22, wherein the at least one appropriate fastener is threaded, and the at least one appropriate fastener can pass through said at least one hole of said second housing and engage said user selected one of said plurality of holes of said first housing to thereby secure said second housing to said first housing in said user selected one of said plurality of angular orientations.

24. The latch according to claim 22, wherein said pawl is supported by said second housing for rotary movement between latched and unlatched positions relative to said second housing.

25. The latch according to claim 24, wherein said pawl is spring biased toward said unlatched position, wherein said latch module further comprises a catch member movable between engaged and disengaged positions and biased toward said engaged position, wherein said catch member maintains said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position, and wherein said pawl is released for movement to said unlatched position under spring bias when said catch member is moved to said disengaged position.

26. The latch according to claim 25, wherein said actuating member is adapted to selectively engage said catch member to thereby move said catch member to said disengaged position.

27. The latch according to claim 26, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

28. The latch according to claim 27, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

29. The latch according to claim 28, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

30. The latch according to claim 29, wherein said catch member has an inclined surface and said post member of said actuating member engages said inclined surface to move said catch member from said engaged position to said disengaged position as said actuating member is moved linearly from said retracted position to said extended position when said latch module is secured to said actuating module in said user selected one of said plurality of angular orientations of said latch module relative to said actuator module.

31. The latch according to claim 30, wherein said pawl has a catch surface that is engaged by said catch member to retain said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position.

5 32. The latch according to claim 31, wherein said pawl moves rotationally between said latched position and said unlatched position about an axis of rotation, wherein said pawl has a pawl slot having an open end, wherein said second housing has a crook portion that overhangs said axis of rotation such that said crook portion obstructs said open end of said pawl slot when said pawl is in said latched position, and wherein said open end of said pawl slot is positioned for
10 unobstructed access from at least one direction by a keeper rod when said pawl is in said unlatched position.

 33. The latch according to claim 32, wherein the latch is adapted for attachment to a first member and the keeper rod is attached to a second member and the latch secures the first
15 member in a closed position relative to the second member when the latch is attached to the first member and the keeper rod passes through said pawl slot with said pawl in a latched position, wherein the first member has an opening adapted for mounting of the latch to the first member, wherein said first housing has a first flange that is too large to pass through said opening, wherein said second housing has a second flange that is too large to pass through said opening,
20 and wherein a portion of the first member adjacent the opening is captured between said first flange and said second flange when the latch is attached to the first member with said second housing secured to said first housing.

34. The latch according to claim 33, wherein said pawl has a cam surface defining one side of said open end of said pawl slot, and wherein said cam surface at said open end of said pawl slot is impacted by the keeper rod to thereby initiate rotation of said pawl from said unlatched position toward said latched position and further engagement of the keeper rod with said pawl slot causes further rotation of said pawl toward said latched position as the first member is moved to the closed position relative to the second member, such that movement of said pawl to said latched position is accomplished by moving the first member to the closed position relative to the second member.

35. The latch according to claim 22, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

36. The latch according to claim 35, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

37. The latch according to claim 36, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating

member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

38. The latch according to claim 7, wherein said first housing has at least one hole and
5 said second housing has a plurality of holes, said at least one hole of said first housing registering with a user selected one of said plurality of holes of said second housing to thereby allow said second housing to be secured to said first housing in said user selected one of said plurality of angular orientations by using at least one appropriate fastener cooperating with said at least one
10 hole of said first housing and said user selected one of said plurality of holes of said second housing.

39. The latch according to claim 38, wherein the at least one appropriate fastener is threaded, and the at least one appropriate fastener can pass through said user selected one of said plurality of holes of said second housing and engage said at least one hole of said first housing to
15 thereby secure said second housing to said first housing in said user selected one of said plurality of angular orientations.

40. The latch according to claim 38, wherein said pawl is supported by said second housing for rotary movement between latched and unlatched positions relative to said second
20 housing.

41. The latch according to claim 40, wherein said pawl is spring biased toward said unlatched position, wherein said latch module further comprises a catch member movable

between engaged and disengaged positions and biased toward said engaged position, wherein said catch member maintains said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position, and wherein said pawl is released for movement to said unlatched position under spring bias when said catch member is moved to said disengaged position.

42. The latch according to claim 41, wherein said actuating member is adapted to selectively engage said catch member to thereby move said catch member to said disengaged position.

43. The latch according to claim 42, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

44. The latch according to claim 43, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

45. The latch according to claim 44, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating

member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

46. The latch according to claim 45, wherein said catch member has an inclined surface and said post member of said actuating member engages said inclined surface to move said catch member from said engaged position to said disengaged position as said actuating member is moved linearly from said retracted position to said extended position when said latch module is secured to said actuating module in said user selected one of said plurality of angular orientations of said latch module relative to said actuator module.

47. The latch according to claim 46, wherein said pawl has a catch surface that is engaged by said catch member to retain said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position.

48. The latch according to claim 47, wherein said pawl moves rotationally between said latched position and said unlatched position about an axis of rotation, wherein said pawl has a pawl slot having an open end, wherein said second housing has a crook portion that overhangs said axis of rotation such that said crook portion obstructs said open end of said pawl slot when said pawl is in said latched position, and wherein said open end of said pawl slot is positioned for unobstructed access from at least one direction by a keeper rod when said pawl is in said unlatched position.

49. The latch according to claim 48, wherein the latch is adapted for attachment to a first member and the keeper rod is attached to a second member and the latch secures the first member in a closed position relative to the second member when the latch is attached to the first member and the keeper rod passes through said pawl slot with said pawl in a latched position, 5 wherein the first member has an opening adapted for mounting of the latch to the first member, wherein said first housing has a first flange that is too large to pass through said opening, wherein said second housing has a second flange that is too large to pass through said opening, and wherein a portion of the first member adjacent the opening is captured between said first flange and said second flange when the latch is attached to the first member with said second 10 housing secured to said first housing.

50. The latch according to claim 49, wherein said pawl has a cam surface defining one side of said open end of said pawl slot, and wherein said cam surface at said open end of said pawl slot is impacted by the keeper rod to thereby initiate rotation of said pawl from said 15 unlatched position toward said latched position and further engagement of the keeper rod with said pawl slot causes further rotation of said pawl toward said latched position as the first member is moved to the closed position relative to the second member, such that movement of said pawl to said latched position is accomplished by moving the first member to the closed position relative to the second member.

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51. The latch according to claim 38, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

52. The latch according to claim 51, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

53. The latch according to claim 52, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

54. The latch according to claim 7, wherein said first housing has a first plurality of holes and said second housing has a second plurality of holes, said second plurality of holes registering with said first plurality of holes with said second housing being in any one of said plurality of angular orientations to thereby allow said second housing to be secured to said first housing in said user selected one of said plurality of angular orientations by using a plurality of appropriate fasteners in cooperation with said first plurality of holes and said second plurality of holes.

55. The latch according to claim 54, wherein the plurality of appropriate fasteners are threaded, and each of the plurality of appropriate fasteners can pass through a respective one of said second plurality of holes engage a respective one of said first plurality of holes to thereby

secure said second housing to said first housing in said user selected one of said plurality of angular orientations.

56. The latch according to claim 54, wherein said pawl is supported by said second housing for rotary movement between latched and unlatched positions relative to said second housing.

57. The latch according to claim 56, wherein said pawl is spring biased toward said unlatched position, wherein said latch module further comprises a catch member movable between engaged and disengaged positions and biased toward said engaged position, wherein said catch member maintains said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position, and wherein said pawl is released for movement to said unlatched position under spring bias when said catch member is moved to said disengaged position.

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58. The latch according to claim 57, wherein said actuating member is adapted to selectively engage said catch member to thereby move said catch member to said disengaged position.

59. The latch according to claim 58, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

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60. The latch according to claim 59, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

61. The latch according to claim 60, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

62. The latch according to claim 61, wherein said catch member has an inclined surface and said post member of said actuating member engages said inclined surface to move said catch member from said engaged position to said disengaged position as said actuating member is moved linearly from said retracted position to said extended position when said latch module is secured to said actuating module in said user selected one of said plurality of angular orientations of said latch module relative to said actuator module.

63. The latch according to claim 62, wherein said pawl has a catch surface that is engaged by said catch member to retain said pawl in said latched position when said pawl is in said latched position and said catch member is in said engaged position.

64. The latch according to claim 63, wherein said pawl moves rotationally between said latched position and said unlatched position about an axis of rotation, wherein said pawl has a pawl slot having an open end, wherein said second housing has a crook portion that overhangs said axis of rotation such that said crook portion obstructs said open end of said pawl slot when said pawl is in said latched position, and wherein said open end of said pawl slot is positioned for unobstructed access from at least one direction by a keeper rod when said pawl is in said unlatched position.

65. The latch according to claim 64, wherein the latch is adapted for attachment to a first member and the keeper rod is attached to a second member and the latch secures the first member in a closed position relative to the second member when the latch is attached to the first member and the keeper rod passes through said pawl slot with said pawl in a latched position, wherein the first member has an opening adapted for mounting of the latch to the first member, wherein said first housing has a first flange that is too large to pass through said opening, wherein said second housing has a second flange that is too large to pass through said opening, and wherein a portion of the first member adjacent the opening is captured between said first flange and said second flange when the latch is attached to the first member with said second housing secured to said first housing.

66. The latch according to claim 65, wherein said pawl has a cam surface defining one side of said open end of said pawl slot, and wherein said cam surface at said open end of said pawl slot is impacted by the keeper rod to thereby initiate rotation of said pawl from said

unlatched position toward said latched position and further engagement of the keeper rod with said pawl slot causes further rotation of said pawl toward said latched position as the first member is moved to the closed position relative to the second member, such that movement of said pawl to said latched position is accomplished by moving the first member to the closed position relative to the second member.

67. The latch according to claim 54, wherein said actuating member is supported by said first housing for linear movement directed along said imaginary axis.

68. The latch according to claim 67, wherein said actuator module further comprises a handle pivotally attached to said first housing, said handle moving pivotally between a raised position and a folded-down position, said actuating member moving linearly along said imaginary axis in response to said handle moving between said raised position and said folded-down position.

69. The latch according to claim 68, wherein said actuating member includes a base and a post member that projects from said base, said post member having a longitudinal axis that defines said longitudinal axis of said actuating member, said base having a cam surface, said handle having a cam surface that engages said cam surface of said base to move said actuating member linearly along said imaginary axis from a retracted position to an extended position as said handle is pivotally moved from said folded-down position to said raised position.

70. A latch comprising:

an actuator module having a first plurality of holes, said actuator module comprising an actuating member, said first plurality of holes being distributed about said actuating member with said actuating member being centrally located with respect to said first plurality of holes;

5 and

a latch module including at least a portion of a latching mechanism, said latch module having a second plurality of holes adapted to register with said first plurality of holes with said latch module in any one of a plurality of angular orientations relative to said actuator module,

wherein a position of said actuating member relative to said latch module remains
10 essentially unchanged regardless of which one of said plurality of angular orientations is selected when securing said latch module to said actuator module.

71. A latch for releasably securing a first member in a closed position relative to a second member, the first member having an opening adapted for mounting of the latch to the first

15 member, the latch comprising:

an actuator module comprising a first housing, said first housing having a first flange;
and

a latch module including at least a portion of a latching mechanism, said latch module comprising a second housing, said second housing having a second flange,

20 wherein said first flange is too large to pass through the opening, wherein said second flange is too large to pass through the opening, and wherein a portion of the first member adjacent the opening is captured between said first flange and said second flange when the latch is attached to the first member with said second housing secured to said first housing.

72. The latch according to claim 71, wherein said actuator module further comprises an actuating member supported by said first housing, wherein said actuating member has a longitudinal axis, wherein said latch module further comprises a pawl supported by said second housing, wherein the latch remains operable with said second housing secured to said first housing in a user selected one of a plurality of angular orientations relative to said first housing about an imaginary axis coincident with said longitudinal axis of said actuating member.

73. A latch for releasably securing a first member in a closed position relative to a second member, the latch comprising:

a housing adapted for attachment to the first member;

a handle pivotally supported by said housing, said handle being movable between a folded-down position and a raised position;

a retaining member supported by said housing, said retaining member being movable and being biased toward a first position by a biasing force; and

a lock plug carried by said handle, said lock plug being rotationally movable between a locked position and an unlocked position, at least a portion of said retaining member interfering with at least a portion of said lock plug to prevent movement of said handle to said raised position when said handle is in said folded-down position, said lock plug is in said locked position and said retaining member is in said first position,

said handle being movable by a user to said raised position from said folded-down position when said lock plug is in said unlocked position,

at least a portion of said retaining member interfering with at least a portion of said lock plug to maintain said handle in an intermediate position between said raised position and said folded-down position when said handle is released by a user from said raised position with said lock plug in said locked position,

5 wherein said handle can be moved from said intermediate position to said folded down position to thereby lock said handle in said folded-down position when said handle in said intermediate position is pushed by a user toward said folded-down position with sufficient force to overcome said biasing force.

10 74. The latch according to claim 73, wherein said retaining member is an actuating member movable responsive to movement of said handle over at least a portion of a range of motion of said handle, said range of motion of said handle being limited by said folded-down position and said raised position, the latch further comprising:

a latching mechanism engageable by said actuating member, said latching mechanism
15 being operable between a latched configuration and an unlatched configuration, said latching mechanism being capable of operation between said latched configuration and said unlatched configuration with said handle in said intermediate position and with said lock plug in said locked position, and pushing said handle from said intermediate position to said folded-down position with the first member in the closed position relative to the second member, and with

20 said lock plug in said locked position, locks the first member in the closed position relative to the second member.